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ABSTRACT

This report, which is an abstract and summary of a 450 page study, is intended to serve as a device to stimulate qualitative introspection with an end toward the improvement of the Nasson College students' undergraduate academic experiences. The contents of the report represent the results of empirical curricular research undertaken at the college during the period from September 1970 through April 1972. To promote curricular reform, analyses were made of the Division of Behavioral Sciences (including psychology and sociology), the Division of Economics and Business, the Division of Humanities (including the English, French, German and humanities major courses of study), the Division of Science-Mathematics (including the biology, chemistry, mathematics, and medical technology courses of study), and the Division of Social Sciences (including government and history). (HS)

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Research Report on Curriculum

submitted to

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by

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Introduction

The contents of this report represent the results of empirical curricular research which was undertaken during the period from September, 1970 through April, 1972.

This report, which is an abstract and summary of a 450 page study, does not include: 1.) a detailed introduction and overview of the problem; 2.) hypotheses, limitations, or significance of the study; 3.) brief history of the College; 4.) curricular evolution of the College; 5.) philosophical evolution of the College; 6.) review of applicable literature; 7.) data of the study; or 7.) implications for further study.

These items mentioned above and not included within this report can be found within the dissertation entitled Curricular Implications of Characteristics of Recent Classes at a Small Liberal Arts Institution by Bartholomew J. Ciampa, Ph.D. This dissertation has been placed on file in the Nasson College library and can also be obtained from University Microfilms, Inc.

This report is intended to serve merely as a device to stimulate qualitative introspection with an end toward the improvement of the Nasson College students' undergraduate academic experiences. With this in mind, specific questions concerning the report warrant the consultation of the complete study upon which this report is based.

Research Report on Curriculum

The precipitating agent in the formulation of the original design, purposes, and hypotheses of this study emerged as the result of the Nasson College faculty's decision to modify existing core and major curricular requirements. These modifications came upon the heels of a total re-orientation of the College's goals and objectives which were formulated during the fall semester of the 1969 academic year.

Modifications and re-alignments of such an extensive nature are expected to be made, under the most desireable conditions, as the result of the long and intense deliberation of assets and liabilities which might arise as the result of the projected alterations. It is hoped that this sort of deliberation will also reflect the findings of research studies of the College curriculum or, at the very least, a data base from which informed decisions can be made.

At the time of the philosophical and curricular changes noted above, neither a data base nor cogent prior studies were in existence. This caused a question to arise as to whether or not these changes were based upon fact or merely a consensus of conjecture.

As a result it was decided to design a study which would provide statistical analyses of certain College curricular characteristics and which could be used as a projective device to be considered prior to the implementation of any future changes of curricular or philosophical significance. This study, it was hoped, would supply the necessary information which could lead to qualitative considerations of planned change based upon fact as opposed to conjecture or subjective opinion.

It was felt that in order for one to completely understand the present state of the institution it would be necessary to first become familiarized with the nature of the philosophical and curricular evolution of the College. For this reason the College's philosophical and curricular history from its founding in 1912 to the present were included.

These histories are intended to serve to provide insights to possible future trends.

In addition, it was decided that a statistical data base and analysis vis-a-vis each of the College's major courses of study, divisions of instruction, and all-College core requirements, could be synthesized as the result of data available in the individual student's cumulative folders which are kept on file in the office of the Registrar.

As a result of a review of prior research concerning the prediction of success of students' college performance it was decided that certain characteristics (Rank In High School Class, Verbal and Non-verbal College Entrance Examination Board - Scholastic Aptitude Test results) could be applied as a measure of the effectiveness of the curricular components of the College through an examination of the population of each component when mean scores as of major of first choice and mean scores at time of graduation were compared. By a comparison of each input and output status it was seen as possible to determine the net effect of student migration upon each component.

In order to insure the validity of any trend generalization it was decided to use eight consecutive College graduating classes (the four most recently graduated classes, and the four incumbent classes) for the population of the study.

The population of the study, therefore, was composed of all students enrolled at the College in the classes of 1968 through 1975 with one notable exception.

Students who had transferred into the College and had earned more than thirty semester hours of course credit at other institutions of higher learning were not included within the population of the study under the assumption that such transfer students' choices of major courses of study were influenced by factors encountered prior to their joining the Nasson student body. Since the study was to be concerned, in large part, with the mobility of students from one curricular component to another, within the College, it was assumed that a higher degree of validity could be realized by excluding such transfer students from the study population, thereby maintaining more of a "closed system" for consideration.

It should be stated also that another factor which served as a catalyst in the overall design of the study was the frequency with which one is confronted by statements of opinions to the effect that certain curricular majors attract the "best" students; that certain curricular programs have the "highest" standards; or that, for various reasons, the rate of student mobility into/or from certain majors is either high or low.

In an attempt to "quantify" and either reinforce or dispel the foregoing statements the following data were gathered for each student.

a. Student identification code.

b. Year of student's College graduating class.

c. Curricular major of first choice while enrolled at the College.

d. Curricular major at time of graduation (for classes of 1968-1972) or last reported major as of time of data gathering (for classes of 1973-1975).

e. Rank in high school class which was converted from raw numerical standing to rank in class by fifths.

f. College Entrance Examination Board - Scholastic Aptitude Test scores obtained, as of most recent testing date, from the Verbal section of the test.

g. College Entrance Examination Board - Scholastic Aptitude Test scores obtained, as of most recent testing date, from the Non-verbal section of the test.

The choice of these criteria as instruments of the study were influenced by Chauncey and Fredericksen's[1] findings that correlated College Entrance Examination Board - Scholastic Aptitude Test results and freshmen grades for several entering groups of Harvard and Princeton freshmen; Bloom and Peters'[2] research at the National Registration Office at the University of Chicago using the College Entrance Examination Board - Scholastic Aptitude Test in conjunction with both secondary and college grades;

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[1]Chauncey and Fredericksen, "The Functions of Measurement In Educational Placement", pp. 85-116.

[2]Bloom and Peters, The Use of Academic Prediction Scales, pp. 60-61.

Summerskill's[1] investigations of Scholastic Aptitude Test scores in relation to subsequent attrition from college; and Stern's[2] correlations of the Intellectual Climate section of the College Climate Index to the College Entrance Examination Board - Scholastic Aptitude Test verbal score. Jencks and Reisman[3] further reinforced the validity of the choice of the instruments when they stated that these were the best of any known forecasting devices in predicting college achievement.

Twenty-five null hypotheses were formulated which provided for the examination of:

a. Rank In High School Class, Verbal - Scholastic Aptitude Test results, Non-verbal - Scholastic Aptitude Test results of each division of instruction in relation to national norms on both an input and output basis.

b. Differences between input and output characteristics of Rank In High School Class, Verbal - Scholastic Aptitude Test results, Non-verbal - Scholastic Aptitude Test results, within each major program of study.

c. Differences between major programs of study when Rank In High School Class, Verbal - Scholastic Aptitude Test, Non-verbal - Scholastic Aptitude Test results were considered on an input and output basis.

d. Differences between major programs of study with respect to students' in-migration to one program from another, or out-migration from one program from one program to another.

e. Differences between divisions of instruction when Rank In High School Class, Verbal - Scholastic Aptitude Test results, Non-verbal - Scholastic Aptitude Test results were considered on an input and output basis.

f. Differences between divisions of instruction with respect to students' in-migration to one division from another, or out-migration from one division to another.

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[1]Summerskill, "Dropouts from College", p. 635.

[2]Stern, People In Context, p. 141.

[3]Jencks and Reisman, The Academic Revolution, pp. 123-124.

The hypotheses were accepted or rejected on the basis of either chi-square tests, t-tests, or one-way analyses of variance (wherever applicable in each case) at the .05 level of significance.

Expected chi-square values for all Rank In High School Class and Scholastic Aptitude Test tables were obtained from Educational Testing Services, Princeton, New Jersey, and were derived from data presented in Appendices B and C.

Whenever possible, chi-square and t-test values were obtained with the aid of a Hewlett-Packard 9100B computor.

Findings

Examination of the data revealed that:

a. Significant statistical differences do exist when the Rank In High School Class, Verbal - Scholastic Aptitude Test, and Non-verbal - Scholastic Aptitude Test results of each division of instruction are compared to national norms on either an input or output basis.

b. Significant statistical differences do not exist between input and output characteristics of Rank In High School Class, Verbal - Scholastic Aptitude Test, and Non-verbal - Scholastic Aptitude Test within each major program of study.

c. Significant statistical differences between major programs of study do exist when Non-verbal - Scholastic Aptitude Test results are considered on an input and an output basis, and do not exist when Rank In High School Class and Verbal - Scholastic Aptitude Test results are considered on an input and an output basis.

c. Significant statistical differences do exist between major programs of study with respect to students' in-migration to one program from another, and out-migration from one program to another.

e. Significant statistical differences between divisions of instruction do exist when Rank In High School Class or Non-verbal-Scholastic Aptitude Test results are considered, and do not exist when Verbal - Scholastic Aptitude Test results are considered on both an input and an output basis.

f. Significant statistical differences between divisions of instruction do exist with respect to students' in-migration to one division from another, or out-migration from one division to another.

Analysis Of
Division of Behavioral Sciences

The Division of Behavioral Sciences accounted for 14.4 per cent of the total enrollment of the College in terms of those students initially choosing to major within the Division, and 16.6 per cent of the total enrollment of the College with respect to students who graduated from the Division in the classes of 1968-1972.

This difference indicates an overall in-migrating trend which amounts to a net gain of 14 students for the five graduating classes studied.

Of the total number of graduating majors (98), 43 migrated into the Division from other divisions of instruction resulting in an in-migration percentage of 43.9%.

Of the total number of original majors (84), 29 migrated out of the Division to other divisions resulting in an out-migration percentage of 34.5%.

Thus, it can be generalized that considerable mobility occurs both into and out of the Division resulting ultimately in the net gain mentioned above.

For the same graduating classes (1968-1972), the mean Rank In High School Class of students who first chose a major within the Division, when compared with the mean Rank In High School Class of students who graduated from a major within the Division, showed a decline from a mean rank of .45 to a mean rank of .42.

This difference indicates that the net effect of student mobility resulted in a slight improvement in this characteristic of the Division's population.

When Rank In High School Class distributions were compared to national norms, significant statistical differences were noted which occurred as the result of the national norms' tendencies to appear with greater frequency within the levels which represent students who graduated toward the tops of their high school graduating classes, as compared to the Nasson student whose rank frequency tended to occur toward the middle of his high school graduating class.

Verbal - Scholastic Aptitude Test results displayed a slight decline from a mean score of 480 for those who were original majors within the Division to a mean score of 474 for those who graduated from the Division.

This difference indicates that the net effect of student mobility resulted in a slight decrease in the Verbal Scholastic Aptitude Test characteristic of the Division's population.

Non-verbal - Scholastic Aptitude Test results displayed an increase from a mean score of 495 for those who were original majors within the Division to a mean score of 510 for those who graduated from the Division.

This difference indicates that the net effect of student mobility resulted in an increase in the Non-verbal-Scholastic Aptitude Test characteristic of the Division's population.

When Verbal and Non-verbal - Scholastic Aptitude Test results were compared to distributions of national norms significant statistical differences were noted in each case. These differences occurred as the result of the tendency of the national norms to appear with greater frequency at the extremes of the distributions as compared to the Nasson students' scores which displayed greater central tendencies.

It should be noted that the Division's students' mean input and output scores for both the Verbal and the Non-verbal-Scholastic Aptitude Test were higher than the means of the national sampling of students who later entered college.

The national mean of the Verbal - Scholastic Aptitude Test was 454 and the national mean of the Non-verbal Scholastic Aptitude Test was 485.

Psychology Major Course of Study

The Psychology major course of study accounted for approximately 11.8 percent of the total enrollment of the College in terms of those students initially choosing it as their original major course of study, and approximately 15.3 percent of the total enrollment of the College with respect to students who graduated as Psychology majors in the classes of 1968-1972.

This difference indicates an overall in-migration trend which amounts to a net gain of 21 students for the five graduating classes studied.

Of the total number of graduating majors (91), 48 migrated into the Psychology major course of study resulting in an in-migration percentage of 52.7%.

Of the total number of original majors (70), 27 migrated out of the Psychology major course of study to other majors resulting in an out-migration percentage of 38.6%.

For the five graduating classes (1968-1972), no significant statistical differences appear when original majors' mean scores are compared to graduating majors' mean scores on the basis of Rank In High School Class, Verbal - Scholastic Aptitude Test, or Non-verbal - Scholastic Aptitude Test results.

These results seem to indicate that the causes for student mobility are not due to characteristics related to Rank In High School Class or performance on the College Entrance Examination Board - Scholastic Aptitude Test.

Consequently, alternative reasons for student mobility must be considered.

Sociology Major Course of Study

The Sociology major course of study accounted for approximately 2.4 percent of the total enrollment of the College in terms of those students initially choosing it as their major course of study, and approximately 1.1 percent of the total enrollment of the College with respect to students who graduated as Sociology majors in the classes of 1968-1972.

This difference appears to indicate an overall trend in out-migration for the five graduating classes but it should be noted that this assumption would be based upon a comparatively small sample size which would, thus, give rise to the possibility of an invalid generality.

For the five graduating classes (1968-1972), no significant statistical differences appear when original majors' mean scores are compared with graduating majors' mean scores on the basis of Rank In High School Class, Verbal - Scholastic Aptitude Test, or Non-verbal - Scholastic Aptitude Test results.

These results seem to indicate that the causes for student mobility are not due to characteristics related to Rank In High School Class or performance on the College.

Analysis Of

Division of Economics and Business

The Division of Economics and Business accounted for 14 percent of the total enrollment of the College in terms of those students initially choosing to major in Economics-Business, and 14.1 percent of the total enrollment of the College with respect to students who graduated from the Division in the classes of 1968-1972.

This indicates a trend of in-migration/out-migration balance which amounts to a net gain of only one student for the five graduating classes studied.

Of the total number of graduating majors (84), 28 migrated into the Division to other majors resulting in an in-migration percentage of 33.3%.

Of the total number of original majors (83), 27 migrated out of the Division to other majors resulting in an out-migration percentage of 32.53%.

Thus it can be generalized that although there is a substantial degree of mobility into and from the Division, the size of the Division has remained relatively static in that it gains about as many students as it loses.

For the same graduating classes (1968-1972), the mean Rank In High School Class of students who first chose a major within the Division remained the same (.46) as the mean Rank In High School Class of students who graduated from the Division.

This result indicates that the net effect of student mobility had no impact upon this characteristic of the Division's population.

When Rank In High School Class distributions were compared to national norms, significant statistical differences were noted which occurred as the result of the national norms' tendencies to appear with greater frequency within the levels which represent students who graduated toward the tops of their high school graduating classes as compared to the Nasson student whose rank frequency tended to occur toward the middle of his high school graduating class.

Verbal - Scholastic Aptitude Test results displayed a decline from a mean score of 465 for those who were original majors within the Division to a mean score of 455 for those who graduated from the Division.

This difference indicated that the net effect of student mobility resulted in a decrease in the Verbal - Scholastic Aptitude Test characteristic of the Division's population.

Non-verbal - Scholastic Aptitude Test results displayed an increase from a mean score of 511 for those who were original majors within the Division to a mean score of 520 for those who graduated from the Division.

This difference indicates that the net effect of student mobility resulted in an increase in the Non-verbal - Scholastic Aptitude Test characteristic of the Division's population.

When Verbal and Non-verbal - Scholastic Aptitude Test results were compared to distributions of national norms significant statistical differences were noted in each case. These differences occurred as the result of the tendency of the national norms to appear with greater frequency at the extremes of the distributions as compared to the Nasson students' scores which displayed greater central tendencies.

It should be noted that the Division's students' mean input and output scores for both the Verbal and the Non-verbal - Scholastic Aptitude Test were higher than the means of the national sampling of students who later entered college.

The national mean of the Verbal - Scholastic Aptitude Test was 454 and the national mean of the Non-verbal - Scholastic Aptitude Test was 485.

For the five graduating classes (1968-1972), no significant statistical differences appear when original majors' mean scores are compared to graduating majors' mean score on the basis of Rank In High School Class, Verbal - Scholastic Aptitude Test, or Non-verbal - Scholastic Aptitude Test results.

These results seem to indicate that the causes for student mobility are not due to characteristics related to Rank In High School Class or performance on the College Entrance Examination Board - Scholastic Aptitude Test. Consequently, alternative reasons for student mobility must be considered.

Analysis Of
Division of Humanities

The Division of Humanities accounted for 17.3 percent of the total enrollment of the College in terms of those students initially choosing to major within the Division, and 24.8 percent of the total enrollment of the College with respect to students who graduated from the Division in the classes of 1968-1972.

This difference indicates an overall in-migrating trend which amounts to a net gain of 44 students for the five graduating classes studied.

Of the total number of graduating majors (148), 64 migrated into the Division from other divisions resulting in an in-migration percentage of 43.24%.

Of the total number of original majors (104), 20 migrated out of the Division to other divisions resulting in an out-migration percentage of 19.23%.

Thus it can be generalized that the Division, for the most part, tends to retain a great majority of those students who initially choose one of its major programs and also gains a substantial number of students who migrate in from other divisions of instruction.

For the same period, the mean Rank In High School Class of students who first chose a major within the Division, when compared with the mean Rank In High School Class of students who graduated from a major program within the Division, showed a slight increase from a mean rank of .42 to a mean rank of .43.

This difference indicates that students who migrated out of the Division had a slightly higher rank in high school class than did those who migrated in.

When Rank In High School Class distributions were compared to national norms, significant statistical differences were noted which occurred as the result of national norms tending to appear with more frequency within the levels which represent students who graduated toward the tops of their high school graduating classes, as compared to the Nasson student whose rank frequency tends to occur toward the middle of his high school graduating class.

Verbal - Scholastic Aptitude Test results displayed a decline from a mean score of 501 for those who were original majors within the Division to a mean score of 493 for those who graduated from the Division.

This difference seems to indicate that the net effect of student mobility resulted in a decrease in the Verbal - Scholastic Aptitude Test characteristic of the Division's population.

Non-verbal - Scholastic Aptitude Test results displayed an increase from a mean score of 476 for those who were original majors within the Division to a mean score of 481 for those who graduated from the Division.

This difference indicates that the net effect of student mobility resulted in a slight increase in the Non-verbal - Scholastic Aptitude Test characteristic of the Division's population.

When Verbal and Non-verbal - Scholastic Aptitude Test results were compared to distributions of national norms significant statistical differences were noted in each case. These differences occurred as the result of the tendency of the national norms to appear with greater frequency at the extremes of the distributions as compared to the Nasson students' scores which displayed greater central tendencies.

It should be noted that the Division's students' mean input and output scores for the Verbal - Scholastic Aptitude Test were considerably higher than the national mean of 454 for those students who later entered college. The Division's students' mean input and output scores for the Non-verbal - Scholastic Aptitude Test were very close to the national mean of 485 for those students who later entered college on a nationwide basis.

English Major Course of Study

The English major course of study accounted for approximately 17 percent of the total enrollment of the College in terms of those students initially choosing it as their original major course of study, and approximately 22 percent of the total enrollment of the College with respect to students who graduated as English majors in the classes of 1968-1972.

This difference indicates an overall in-migration trend which amounts to a net gain of 29 students for the five graduating classes studied.

Of the total number of graduating majors (132), 49 migrated into the English major course of study from other majors resulting in an in-migration percentage of 37.1%.

Of the total number of original majors (103), 20 migrated out of the English major course of study to other majors resulting in an out-migration percentage of 19.4%.

For the same five graduating classes no significant statistical differences appear when original majors' mean scores are compared with graduating majors' mean scores on the basis of Rank In High School Class, Verbal - Scholastic Aptitude Test results or Non-verbal - Scholastic Aptitude Test results.

These results seem to indicate that the causes for student mobility (in-migration trends in this case) are not due to characteristics related to Rank In High School Class or performance on the College Entrance Examination Board - Scholastic Aptitude Test. Consequently, alternative reasons for student mobility must be considered.

French Major Course of Study

The French major course of study accounted for none (0.0%) of the total enrollment of the College in terms of those students initially choosing it as their major course of study, and approximately 1.3 percent of the total enrollment of the College with respect to students who graduated as French majors in the classes of 1968-1972.

This difference appears to indicate a trend in in-migration but it should be noted that such an assumption would be based upon a comparatively small sample size which would, thus, give rise to the possibility of an invalid generality.

Insufficient data available due to small sample size negated the possibility of determining valid statistical differences between majors' original Rank In High School Class and Scholastic Aptitude Test results and graduating majors' Rank

In High School Class and Scholastic Aptitude Test results. Consequently, the reasons for mobility patterns, at best, can only be based upon conjecture at this time.

German Major Course of Study

The German major course of study accounted for approximately 0.20 percent of the total enrollment of the College in terms of those students initially choosing it as their major course of study, and approximately 1.4 percent of the total enrollment of the College with respect to students who graduated as German majors in the classes of 1968-1972.

This difference appears to indicate a trend in in-migration but it should be noted that this assumption would be based upon a comparatively small sample size which would, thus, give rise to the possibility of an invalid generality.

The small sample size inhibits the possibility of determining valid statistical differences between majors' original Rank In High School Class and Scholastic Aptitude Test results and graduating majors' Rank In High School Class and Scholastic Aptitude Test results. Consequently, the reasons for mobility patterns, at best, can be based only upon conjecture at this time.

Humanities Major Course of Study

This major course of study was instituted as of the class of 1972 and, as of the date of data gathering, no students had been enrolled in the classes of 1968-1972.

Analysis Of
Division of Science - Mathematics

The Division of Science - Mathematics accounted for 28.9 percent of the total enrollment of the College in terms of those students initially choosing to major within the Division, and 16.4 percent of the total enrollment of the College with respect to students who graduated from the Division in the classes of 1968-1972.

This difference indicates an overall out-migrating trend which amounts to a net loss of 65 students for the five graduating classes studied.

Of the total number of graduating majors (108), 5 migrated into the Division from the other divisions resulting in an in-migration percentage of 4.63%.

Of the total number of original majors (173), 70 migrated out of the Division to other divisions resulting in an out-migration percentage of 40.46%.

Thus it can be generalized that the Division tends to lose a substantial number of those students who initially choose one of its majors and also gains relatively few students who migrate in from other divisions of instruction.

For the same graduating classes, the mean Rank In High School Class of students who first chose a major within the Division, when compared with the mean Rank In High School Class of students who graduated from a major within the Division, showed a decline from a mean rank of .38 to a mean rank of .36.

This difference indicates that the net effect of student mobility resulted in a slight improvement in this characteristic of the Division's population.

When Rank In High School Class distributions were compared to national norms, significant statistical differences were noted which occurred as the result of the national norms' tendencies to appear with greater frequency within the levels which represent students who graduated toward the tops of their high school graduating classes, as compared to the Nasson student whose rank frequency tends to occur toward the middle of his high school graduating class.

Verbal - Scholastic Aptitude Test results displayed an increase from a mean score of 468 for those who were original majors within the Division to a mean score of 478 for those who graduated from the Division.

This difference indicates that the net effect of student mobility resulted in an improvement in the Verbal - Scholastic Aptitude Test characteristic of the Division's population.

Non-verbal - Scholastic Aptitude Test results displayed a slight decline from a mean score of 545 for those who were original majors within the Division to a mean score of 542 for those who graduated from the Division.

This difference indicates that the net effect of student mobility resulted in a very slight decrease in the Non-verbal - Scholastic Aptitude Test characteristic of the Division's population.

When Verbal and Non-verbal - Scholastic Aptitude Test results were compared to distributions of national norms, significant statistical differences were noted in each case. These differences occurred as the result of the tendency of the national norms to appear with greater frequency at the extremes of the distributions as compared to the Nasson students' scores which displayed greater central tendencies.

It should be noted that the Division's students' mean input and output scores for both the Verbal and the Non-verbal - Scholastic Aptitude Test were considerably higher than the means of the national sampling of students who later entered college.

The national mean of the Verbal - Scholastic Aptitude Test was 454 and the national mean of the Non-verbal - Scholastic Aptitude Test was 485.

Biology Major Course of Study

The Biology major course of study accounted for approximately 13.3 percent of the total enrollment of the College in terms of those students initially choosing it as their original major course of study, and approximately 6.6 percent of the total enrollment of the College with respect to students who graduated as Biology majors in the classes of 1968-1972.

This difference indicates an overall out-migration trend which amounts to a net loss of 39 students for the five graduating classes studied.

Of the total number of graduating majors (40), 4 migrated into the Biology major course of study resulting in an in-migration percentage of 10.0%.

Of the total number of original majors (79), 43 migrated out of the Biology major course of study to other majors resulting in an out-migration percentage of 54.4%.

For the five graduating classes (1968-1972), no significant statistical differences appear when original majors' mean scores are compared with graduating majors' mean scores on the basis of Rank In High School Class, Verbal - Scholastic Aptitude Test, or Non-verbal - Scholastic Aptitude Test results.

These results seem to indicate that the causes for student mobility (out-migration trend in this case) are not due to characteristics related to Rank In High School Class or performance on the College Entrance Examination Board - Scholastic Aptitude Test. Consequently, alternative reasons for student mobility must be considered.

Chemistry Major Course of Study

The Chemistry major course of study accounted for approximately 4.3 percent of the total enrollment of the College in terms of those students initially choosing it as their original major course of study, and approximately 2.1 percent of the total enrollment of the College with respect to students who graduated as Chemistry majors in the classes of 1968-1972.

This difference indicates an overall out-migration trend which amounts to a net loss of 14 students for the five graduating classes studied.

Of the total number of graduating majors (12), 3 migrated into the Chemistry major course of study from other majors resulting in an in-migration percentage of 25.0%.

Of the total number of original majors (26), 17 migrated out of the Chemistry major course of study to other majors resulting in an out-migration percentage of 65.4%.

For the five graduating classes (1968-1972), no significant statistical differences appear when original majors' mean scores are compared with graduating majors' mean scores on the basis of Rank In High School Class, Verbal - Scholastic Aptitude Test, or Non-verbal - Scholastic Aptitude Test results.

These results seem to indicate that the causes for students' mobility (out-migration trend in this case) are not due to characteristics related to Rank In High School Class or performance on the College Entrance Examination Board - Scholastic Aptitude Test. Consequently, alternative reasons for student mobility must be considered.

Mathematics Major Course of Study

The Mathematics major course of study accounted for approximately 9.2 percent of the total enrollment of the College in terms of those students initially choosing it as their original major course of study, and approximately 7.5 percent of the total enrollment of the College with respect to students who graduated as Mathematics majors in the classes of 1968-1972.

This difference indicates a slight overall out-migration trend which amounts to a net loss of 10 students for the five graduating classes studied.

Of the total number of graduating majors (45), 11 migrated into the Mathematics major course of study resulting in an in-migration percentage of 24.4%.

Of the total number of original majors (55), 21 migrated out of the Mathematics major course of study to other majors resulting in an out-migration percentage of 38.2%.

For the five graduating classes (1968-1972), no significant statistical differences appear when original majors' mean scores are compared with graduating majors' mean scores on the basis of Rank In High School Class, Verbal - Scholastic Aptitude Test, or Non-verbal - Scholastic Aptitude Test results.

These results seem to indicate that the causes for student mobility (out-migration trend in this case) are not due to characteristics related to Rank In High School Class or performance on the College Entrance Examination Board - Scholastic Aptitude Test. Consequently, alternative reasons for student mobility must be considered.

Medical Technology Major Course of Study

The Medical Technology major course of study accounted for approximately 2.2 percent of the total enrollment of the College in terms of those students initially choosing it as their original major course of study, and approximately 1.8 percent of the total enrollment of the College with respect to students who graduated as Medical Technology majors in the classes of 1968-1972.

This difference indicates a slight overall out-migration trend which amounts to a net loss of 2 students to other majors for the five graduating classes studied. It should be noted, however, that any generalities regarding the mobility patterns of Medical Technology majors would be based on a very small population.

Of the total number of graduating majors (11), one migrated into the Medical Technology major course of study from other majors resulting in an in-migration percentage of 9.1%.

Of the total number of original majors (13), 3 migrated out of the Medical Technology major course of study to other majors resulting in an out-migration percentage of 23.1%.

For the five graduating classes (1968-1972), no significant statistical differences appear when original majors' mean scores are compared with graduating majors' mean scores on the basis of Rank In High School Class, Verbal - Scholastic Aptitude Test, or Non-verbal - Scholastic Aptitude Test results.

Analysis Of
Division of Social Sciences

The Division of Social Sciences accounted for 25.4 percent of the total enrollment of the College in terms of those students initially choosing to major within the Division, and 26.5 percent of the total enrollment of the College with respect to students who graduated from the Division in the classes of 1968-1972.

This difference indicates a slight overall in-migrating trend which amounts to a net gain of 6 students for the five graduating classes studied.

Of the total number of graduating majors (157), 32 migrated into the Division from other divisions of instruction resulting in an in-migration percentage of 20.4%.

Of the total number of original majors (151), 26 migrated out of the Division to other divisions resulting in an out-migration percentage of 17.2%.

Thus it can be generalized that although substantial mobility exists, the population of the Division tends to remain relatively stable as the result of its gaining and losing similar numbers of students.

For the same graduating classes (1968-1972), the mean Rank In High School Class of students who first chose a major within the Division, when compared with the mean Rank In High School Class of students who graduated from a major within the Division, remained the same with a mean rank of .46 in both cases.

This result seems to indicate that the net effect of student mobility manifested no change in this characteristic of the Division's population.

When Rank In High School Class distributions were compared to national norms, significant statistical differences were noted which occurred as the result of the national norm's tendency to appear with greater frequency within the levels

which represent students who graduated toward the tops of their high school graduating classes, as compared to the Nasson student whose rank frequency tended to occur toward the middle of his high school graduating class.

Verbal - Scholastic Aptitude Test results displayed a slight decline from a mean score of 483 for those who were original majors within the Division to a mean score of 481 for those who graduated from the Division.

This difference indicates that the net effect of student mobility resulted in a slight decrease in the Verbal - Scholastic Aptitude Test characteristic of the Division's population.

Non-verbal - Scholastic Aptitude Test results displayed a slight increase from a mean score of 481 for those who were original majors within the Division to a mean score of 483 for those who graduated from the Division.

This difference indicates that the net effect of student mobility resulted in a very slight increase in the Non-verbal-Scholastic Aptitude Test characteristic of the Division's population.

When Verbal and Non-verbal - Scholastic Aptitude Test results were compared to distributions of national norms significant statistical differences were noted in each case. These differences occurred as the result of the tendency of the national norms to appear with greater frequency at the extremes of the distributions as compared to the Nasson students' scores which displayed greater central tendencies.

It should be noted that the Division's students' mean input and output scores for the Verbal - Scholastic Aptitude Test were considerably higher than the national mean of 454 for those students who later entered college. The Division's students' mean input and output scores for the Non-verbal - Scholastic Aptitude Test were very close to the national mean of 485 for those students who later entered college on a nationwide basis.

Government Major Course of Study

The Government major course of study accounted for approximately 6.7 percent of the total enrollment of the College in terms of those students initially choosing it as their original major course of study, and approximately 7.2 percent of the total enrollment of the College with respect to students who graduated as Government majors in the classes of 1968-1972.

This difference indicates a slight overall in-migration trend which amounts to a net gain of 4 students for the five graduating classes studied.

Of the total number of graduating majors (42), 17 migrated into the Government major course of study resulting in an in-migration percentage of 40.5%.

Of the total number of original majors (39), 13 migrated out of the Government major course of study to other majors resulting in an out-migration percentage of 33.3%.

For the five graduating classes (1968-1972), no significant statistical differences appear when original majors' mean scores are compared to graduating majors' mean scores on the basis of Rank In High School Class, Verbal- Scholastic Aptitude Test or Non-verbal Scholastic Aptitude Test results.

These results seem to indicate that the causes for student mobility are not due to characteristics related to Rank In High School Class or performance on the College Entrance Examination Board - Scholastic Aptitude Test. Consequently, alternative reasons for student mobility must be considered.

History Major Course of Study

The History major course of study accounted for approximately 18.7 percent of the total enrollment of the College in terms of those students initially choosing it as their original major course of study, and approximately 19.4 percent of the total enrollment of the College with respect to students who graduated as History majors in the classes of 1968-1972.

This difference indicates a slight overall in-migration trend which amounts to a net gain of 3 students for the five graduating classes studied.

Of the total number of graduating majors (115), 34 migrated into the History major course of study resulting in an in-migration percentage of 28.7%.

Of the total number of original majors (112), 31 migrated out of the History major course of study to other majors resulting in an out-migration percentage of 27.6%.

For the five graduating classes (1968-1972), no significant statistical differences appear when original majors' mean scores are compared with graduating majors' mean scores on the basis of Rank In High School Class, Verbal - Scholastic Aptitude Test, or Non-verbal - Scholastic Aptitude Test results.

These results seem to indicate that the causes for student mobility are not due to characteristics related to Rank In High School Class or performance on the College Entrance Examination Board - Scholastic Aptitude Test. Consequently, alternative reasons for student mobility must be considered.

All-College Comparisons

When major courses of study were compared in terms of Rank In High School Class, performance on the Verbal - Scholastic Aptitude Test and Non-verbal - Scholastic Aptitude Test according to majors of first choice and majors at time of graduation, significant statistical differences occurred only when Non-verbal - Scholastic Aptitude Test results were compared in each case.

Therefore it can be assumed that no significant statistical changes occurred with respect to Rank In High School Class, or Scholastic Aptitude Test characteristics as a direct result of student mobility from major to major.

Also, when divisions of instruction were compared on the basis of the same characteristics it was found that statistically significant differences occurred when Rank In High School Class was considered and when Non-verbal - Scholastic Aptitude Test results were considered.

In each case these significant differences occurred both when divisions of instruction of first choice and divisions of instruction at time of graduation were considered.

These results also reinforce the notion that no significant statistical changes occurred as the result of student mobility.

Speculation regarding the above findings was warranted in the first place because statistical significance occurred when student mobility patterns were examined. This significance occurred when major courses of study were compared regarding the in-migration of students from one major to another and also regarding the out-migration of students to one major from another.

The same results occurred when divisions of instruction were compared in terms of both in-migration and out-migration patterns.

These findings reinforce earlier findings which arose as the result of the non-significant statistical differences which occurred when mean Rank In High School Class and performance on the College Entrance Examination Board - Scholastic Aptitude Test at time of first choice were compared to scores at time of graduation.

Hence, although considerable mobility exists between major courses of instruction, the net effect of College-wide in-migration or out-migration from major to major does not significantly alter the statistical characteristics of any of the major courses of study.

General Implications

The most striking implications arise as the result of the major findings of the study which are:

1. Although it may be true that certain major programs of study initially attract students who score significantly higher than the populations of other major programs of study (on the Non-verbal - Scholastic Aptitude Test only), it has been shown that no major program of

study either benefits or suffers significantly as the result of the net effect of student mobility. This was true regardless of whether the program of study displayed trends of net in-migration, net out-migration, or relative net stability of numbers of students even when considerable mobility took place.

2. When the curricular requirements of each major program were examined in the light of migration patterns the following relationship was found. Programs displaying a high net out-migration trend were found to require the greatest number of course-credit degree requirements while, on the other hand, programs displaying a high net in-migration trend were found to require the lowest number of course-credit degree requirements. It is obvious that a cause and effect relationship exists in this case because it is simply less complicated for a student to migrate into a major program with fewer course-credit requirements than it is to migrate into a program with more requirements, which, in the latter case, could necessitate an extension of the traditional four-year undergraduate experience.
3. Since significant differences exist between major programs of study regarding in-migration and out-migration patterns, and since it has been shown that no major program of study either benefits or suffers significantly in terms of Rank In High School Class, Verbal or Non-verbal - Scholastic Aptitude Test results, it follows that other causes for student mobility should be questioned. Such causes might be related to course-credit requirements, non-quantifiable positive or negative faculty characteristics, and/or non-quantifiable positive or negative student characteristics.

The discrepencies between major programs of study regarding course-credit degree requirements cause a number of considerations to arise for speculation.

If, as Bruce Deering[1] and John Corson[2] suggest, it is true that student bodies as well as faculties are resistant to change and innovation and that, specifically, faculty members dealing with the liberal arts tend to suspect change that is put forth by groups that are external to their disciplines, perhaps these faculties are not concerning themselves with educational problems of College-wide perspective. Quite possibly, the result when compounded could lead from course irrelevance, to major program irrelevance, and ultimately to institutional irrelevance.

When considering the interrelating nature of the entire College curriculum, the impact that a change within one particular major program of study has upon other programs of the College must be examined carefully.

It is obvious from the degree-requirement discrepancies that curricular imbalance does, indeed, exist. This imbalance, especially in those programs having more extensive requirements, may be the result of the inclusion of non-relevant courses of personal research interest to the professors[3] or perhaps due to faculty misperceptions with respect to graduate school demands for either program diversification or concentration.

The strong trend towards early specialization, which is most apparent within programs of study displaying the most marked out-migration trends, could quite possibly be threatening to drive out the liberal studies that ostensibly provide for student perspective and maturity thereby resulting in a drastic alteration of the traditional liberal arts concept upon which the College's philosophy is based.[4] These possibilities must be investigated.

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[1]Deering, "Abuses In Undergraduate Teaching," p. 223.

[2]Corson, The Governance of Colleges and Universities, p. 173.

[3]Ibid., p. 150.

[4]DeVane, Higher Education in Twentieth-Century America, p. 146.

Perhaps the elimination of course duplication (e.g. Statistics offered by 3 different major programs of study) or the taking advantage of the extensive nature of current high school preparation could provide the College with the opportunity of eradicating courses which do not take advantage of the students preparation.

The changes in all-College requirements which occurred during the Fall of 1970 and which were intended to provide for more curricular flexibility from both student and departmental perspectives could actually be serving in a counter-productive manner. For, as Dressel warns,[1] if general degree requirements become extensive, requests to waiver some of these requirements are soon made by certain departments. When this happens there begins to be a tendency to set up common but a more limited set of requirements for all curricula. Thus, with fewer general all-College requirements, a vacuum is created into which the faculties of major programs of study can insert additional courses leading to expanded major program degree requirements or, at the very least, can "suggest" in an advisory capacity that certain courses be "elected" in addition to existing requirements.

Course profusion, whcih may exist within certain programs of study, has often arisen without regard to the qualities of interrelationship and wholeness that are essential to a sound liberal learning program.[2] Consequently, inconsistencies may exist between the stated philosophy of the College and some of its major programs in terms of depth of specialization. Major programs of study at this small liberal arts college cannot hope to be all things to all students. Perhaps, in this sense, some major programs of study are providing specialized coursework far beyond the needs of undergraduates. If such is the case, the impact upon the total College curriculum must be considered in light of duplicating and over-lapping courses in different departments, courses which are unduly narrow and specialized, and courses which are unduly elementary or inappropriate for the college level.

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[1]Dressel, The Undergraduate Curriculum in Higher Education, pp. 42-43.

[2]Rothwell, "The Re-affirmation of Liberal Education", p. 45.

Another possibility that cannot be overlooked is that several inherent factors of the Faculty's constitution may be preventing some major programs of study from constructive evolution and may be causing others to expand dis-proportionately. These factors seem to be due to the dispersion of decision-making authority. Most major programs of study and divisions of instruction of the College are relatively autonomous and free from hierarchical administrative direction. Consequently, the faculty characteristics within certain departments or divisions coupled with the faculty's commitments to its disciplines, and compounded by the lack of constitutional provision for an academic officer who can meaningfully synthesize the effort of all major programs of study into some coherent and consistent whole, all contribute to antitheses of philosophy, policy, and practice.

In view of the general findings and implications of the study the following items must be considered if the College is to maintain curricular and philosophical consistency and make progress toward meeting its institutional objectives.

1. The College should construct, on the basis of study, a detailed plan for growth which is consistent with its stated objectives.
2. The question of whether Nasson's prior curricular change has served to be integrating and unifying or dislocating and factionalizing should be examined.
3. Faculty members of all disciplines should concern themselves with the curricular impact each major program of studies has upon all other programs.
4. There should be established some collective means toward achieving the goals of the liberal arts so that each segment of the curriculum will not be functioning in relative isolation.
5. Channels of communication should be provided for the continuing constructive criticism of one major program of study by others.

6. The question of curricular balance with respect to liberal and general education vis-a-vis specialization should be a matter of constant concern of the faculty.
7. The question of whether a subjective determination of curricular balance should be made by an administrative or academic component of the institution must be considered.
8. Courses and curricula should be constantly scrutinized toward their up-dating to guard against their becoming obsolete.
9. Course profusion as the result of duplication and overlapping should be seen as a reality to be examined by the Faculty.
10. The personal research interests of professors should not result in the inclusion of a course in a department's offerings.
11. The question of whether misperceptions exist with respect to graduate school demands within certain programs of study should be examined.
12. The College faculty should be aware of and sensitive to experimentation and changes that are occurring in the secondary school.
13. The faculty should not be detached from advising students on matters other than the selection of courses within their own disciplines.
14. Vested interest groups within the College cannot be allowed to work toward departmental sovereignty.
15. The question of whether there are clearly defined parts of the curriculum which should be abolished for the good of the entire institution should be considered.
16. In the light of increased departmental specialization, the question of whether it is possible for a student to integrate or interrelate his knowledge over several divisions of instruction of the College should be examined.

17. The question of whether service or remedial courses should be a part of the College curriculum should be considered.
18. Departmental competition may be having an effect upon the instructional and advisory function of the faculty.
19. The question of whether the inflexible nature of the curriculum engenders student frustration either on a departmental or an all-College basis should be examined.
20. The question of whether curricular decision making authority should be centralized in view of existing departmental autonomy should be considered.
21. The College should make use of research and development techniques which have proven to be of value in the area of management.
22. Attention should be given to the abler and ambitious student by way of advanced placement.
23. Each anticipated curricular change must be examined in the light of the total College philosophy and rationale.
24. The frameworks of the 50-minute hour, the Monday - Wednesday - Friday week, the September - June year, and the four-credit course structure should be considered.
25. Subject matter sequences should have the flexibility to allow for reasonable changes in career plans during the college years.
26. The question of whether all graduates of this liberal arts institution can be considered as liberally educated should be considered.
27. Applied criteria for the evaluation of teaching performance at the College should be formulated.

28. The College's administration should facilitate the instructional responsibility of the faculty through adequate clerical services.
29. Administrative officers and faculty should give continuous attention to long-range planning as a cooperative venture.
30. The question of whether a sense of clear-cut institutional commitment exists on the part of the faculty and administration should be examined.

STUDY

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